

THE UNIVERSITY OF AUCKLAND

SECOND SEMESTER, 2016
Campus: City

COMPUTER SCIENCE

An Introduction to Practical Computing

TEST SOLUTIONS

(Time Allowed: One hour)

DIRECTIONS

1. Compare the test version number on the Teleform sheet supplied with the version number in the top left corner of this page. If they do not match, ask the test supervisor for a new sheet.
2. Enter your name and Student ID (in pencil) on the Teleform sheet and shade in the corresponding bubbles underneath. Your name and Student Id should both be entered left aligned. If your name is longer than the number of boxes provided, truncate it.
3. Answer all questions on the Teleform answer sheet provided.
4. Use a dark pencil to shade in your answers in the multiple choice answer boxes on the Teleform sheet. Check that the question number on the sheet corresponds to the question number in this question book. If you spoil your sheet, ask the supervisor for a replacement.
5. Each question is worth 2.5 marks. There are 40 questions.
6. Calculators are NOT permitted.

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MULTIPLE CHOICE QUESTIONS

For each question, choose the best answer according to the information presented in lectures. Select your preferred answer on the Teleform answer sheet by shading in the appropriate box in pencil. There are 40 questions. Each question is worth 2.5 marks.

Question 1

[2.5 marks] Which of the following items is NOT a peripheral device?

- (a) Scanner.
- (b) Projector.
- (c) Barcode reader.
- (d) Heatsink.**
- (e) Webcam.

Question 2

[2.5 marks] Which of the following statements about supercomputers are TRUE?

- i. They are computers with a high-level computational capacity compared to a general-purpose computer.
- ii. They are normally used for a wide range of computationally intensive tasks, such as weather forecasting.
- iii. They are used for bulk data processing, such as transaction processing for banking purposes.
- iv. Their performance is measured in PFLOPS.

- (a) i, ii, iv**
- (b) i
- (c) i, iii, iv
- (d) i, iv
- (e) i, ii, iii, iv

Question 3

[2.5 marks] Approximately how fast would you expect a CPU to be in a modern desktop PC?

- (a) 7200 RPM.
- (b) 2 GHz.**
- (c) 10 MHz.
- (d) 2 MB.
- (e) 2 PFLOPS.

Question 4

[2.5 marks] If a program running on a new computer takes 60 minutes to solve a problem today (2016), approximately how long would it take on a computer that will be purchased new 3 years from today? Hint: use Moore's Law as taught in lectures.

- (a) 15 minutes.
- (b) 1.85 minutes.
- (c) 3.75 minutes.
- (d) 7.5 minutes.
- (e) 30 minutes.

Question 5

[2.5 marks] How many bits does it take to represent 16 different values?

- (a) 16
- (b) 4
- (c) 3
- (d) 5
- (e) 8

Question 6

[2.5 marks] Which one of the following binary numbers is equal to the decimal number 26?

- (a) 11010
- (b) 11110
- (c) 10110
- (d) 11100
- (e) 10010

Question 7

[2.5 marks] Which one of the following values is the largest?

- (a) 1 TB.
- (b) 1 TiB.
- (c) 1 PB.
- (d) 1 GB.
- (e) 1 PiB.

Question 8

[2.5 marks] Which one of the following decimal numbers is equal to the binary number 100101?

- (a) 35
- (b) 37**
- (c) 39
- (d) 33
- (e) None of the above.

Question 9

[2.5 marks] Which of the following is NOT an example of system software?

- (a) Microsoft Edge.**
- (b) Linux.
- (c) Disk Defragmenter.
- (d) Microsoft Windows.
- (e) iOS.

Question 10

[2.5 marks] Which of the following statements about files is FALSE?

- (a) A file format specifies how to interpret the numbers stored in a file.
- (b) All data in a file is stored as binary numbers.
- (c) File extensions are used to decide which operating system to use when opening a file.**
- (d) Both programs and data can be stored as files on secondary storage.
- (e) A file extension consists of a dot followed by characters occurring at the end of a file name.

Question 11

[2.5 marks] Which of the following statements about a Command Line Interface is FALSE?

- (a) A CLI is easy to automate via scripting.
- (b) A CLI is generally regarded as hard to use.
- (c) A CLI provides powerful ways to combine different commands.
- (d) A CLI is intuitive and beginner-friendly.**
- (e) A CLI is good for experts that use them often.

Question 12

[2.5 marks] What is a web crawler?

- (a) It is a type of virus that propagates through the Internet.
- (b) It is software that promotes advertisements on the Internet.
- (c) It is a protocol for caching information used by the ISP.
- (d) It is a protocol for finding vulnerabilities on the WWW.
- (e) It is an Internet bot that systematically browses the WWW and indexes the websites that it visits.

Question 13

[2.5 marks] Which of the following statements about a proxy is FALSE?

- (a) It can prevent unauthorized access to a private network.
- (b) It is a computer that sits between a client and a server.
- (c) It can filter out webpage requests.
- (d) It acts as an intermediary for requests from clients seeking resources from other servers.
- (e) It can sometimes have a cache for quick access.

Question 14

[2.5 marks] What is a major difference between Ted Nelson's vision for hypertext compared with Tim Berners-Lee's vision for hypertext?

- (a) One only allows one link to be created per webpage and the other allows multiple links to be created per page.
- (b) One creates random links and the other requires the authors to specify the destination of the links.
- (c) One uses bi-directional linking and the other uses unidirectional linking.
- (d) One can only be used for image files and the other can only be used for sound files.
- (e) There are no major differences.

Question 15

[2.5 marks] What is a filter bubble a result of?

- (a) A search that was filtered through a whitelist to prevent unauthorised access to websites that are considered "dangerous".
- (b) A personalized search in which an algorithm selectively guesses what information a user would like to see based on information about the user.
- (c) A search which prevents tracking of user information by using a wide spectrum filter.
- (d) A personalized search which maintains the anonymity of the users by using a randomizing algorithm.
- (e) A search using a filtering technology to prevent hacking.

Question 16

[2.5 marks] What is the ASCII code for the letter "d"?

- (a) 103
- (b) 98
- (c) 100
- (d) 99
- (e) None of the above.

Question 17

[2.5 marks] Which of the following is considered to be WYSIWYG?

- (a) CSS.
- (b) Microsoft Word.
- (c) LaTeX.
- (d) HTML5.
- (e) Wiki markup.

Question 18

[2.5 marks] Which of the following is NOT a cloud based storage service?

- (a) Thunderbird.
- (b) SugarSync.
- (c) Dropbox.
- (d) Google Drive.
- (e) Microsoft OneDrive.

Question 19

[2.5 marks] Filtering software stops access to websites based on ...

- (a) access time.
- (b) the content.
- (c) proximity to schools.
- (d) the IP address used.
- (e) the software used.

Question 20

[2.5 marks] Why should we question the reliability of the content obtained from some web sources such as Twitter?

- (a) The percentage of people contributing to the information on the Web is low compared to the number of people consuming the information.
- (b) All information on the web is biased somehow.
- (c) The privacy of the information is questionable.
- (d) Most of the information comes from web bots.
- (e) They may allow people to be irresponsible and falsely accuse others.

Question 21

[2.5 marks] How many characters does ASCII encode?

- (a) 58
- (b) 128
- (c) 26
- (d) 64
- (e) 256

Question 22

[2.5 marks] Which of the following statements is FALSE?

- (a) Alexander Bell was awarded the US patent for the telephone.
- (b) Computers were used for code-breaking during World War II.
- (c) ARPA was founded in response to the USSR announcing it had made a nuclear bomb.
- (d) Sputnik 1 was the first satellite launched into orbit.
- (e) George Stibitz was the first person to successfully transmit digital data using telephony.

Question 23

[2.5 marks] Which of the following lists of events is in chronological order (from earliest to most recent)?

- (a) ARPANET launched, DNS developed, WWW developed, TCP/IP required for Internet communication.
- (b) TCP/IP developed, DNS developed, NZ connected to NSFNET, WWW developed.
- (c) DNS developed, ARPANET went international, TCP/IP required for Internet communication, NZ connected to NSFNET.
- (d) WWW developed, ARPANET launched, TCP/IP developed, ARPANET went international.
- (e) ARPANET went international, NZ connected to NSFNET, WWW developed, DNS developed.

Question 24

[2.5 marks] Which of the following is NOT a valid IP address?

- (a) 142.0.1.0
- (b) 192.168.27.2
- (c) ff27:3969:99fb:56ce:face:f00d:1974:1111
- (d) 2056:ffa5:0000:8cdc:b182:0db1:z00a:0000
- (e) 187.206.249.25

Question 25

[2.5 marks] Which of the following statements is FALSE?

- (a) A domain name is a human-readable network address.
- (b) A switch can be used to connect multiple computers to a network.
- (c) A protocol is software used for communication over a network.
- (d) A local area network operates within a 1 km radius.
- (e) Spark and Slingshot are examples of New Zealand ISPs.

Question 26

[2.5 marks] Which of the following statements about email protocols is FALSE?

- (a) IMAP is an acronym for Internet Mail Access Protocol.
- (b) SMTP is used to send emails to the destination mail server.
- (c) The SMTP mail server contacts the DNS to find the address of the destination mail server.
- (d) POP3 is a good protocol to use if reliable access to an Internet connection is not available.
- (e) IMAP is a good protocol to use if you want to access emails from different machines.

Question 27

[2.5 marks] Which of the following statements about the Unsolicited Electronic Messages Act 2007 is FALSE?

- (a) A company/person sending commercial electronic messages must have a working unsubscribe facility for recipients to opt out of receiving these messages whenever they want.
- (b) The use of address-harvesting software is prohibited.
- (c) Only emails and text messages (with or without images) are considered electronic mail.
- (d) Commercial electronic messages need to include accurate information about the person/company sending these messages.
- (e) Unsolicited electronic messages with a New Zealand link are prohibited.

Question 28

[2.5 marks] Which of the following statements about electronic communication is TRUE?

- (a) A pdf file attachment is safe to open.
- (b) Unlike emails, instant messages are private as communication occurs between clients without involving the server.
- (c) You can always trust file attachments received from known senders.
- (d) It is not unusual or illegal for a company to view its employees' emails.
- (e) People cannot misrepresent themselves when communicating electronically.

Question 29

[2.5 marks] Which of the following statements about forums is FALSE?

- (a) USENET predates the World Wide Web.
- (b) Threads are not ordered in the COMPSCI 111 S2 2016 forum.
- (c) A moderator is a forum user with administrative rights.
- (d) A thread is a conversation on a forum.
- (e) Forum communication is asynchronous.

Question 30

[2.5 marks] Which of the following statements about blogs is TRUE?

- (a) Blog posts are always displayed in chronological order.
- (b) Blogs are useful for political movements as online censorship is not possible.
- (c) A microblog is a small blogging website.
- (d) Sites like Facebook and Twitter are now more popular as online diaries than blogs.
- (e) All of the above.

Question 31

[2.5 marks] Which of the following statements about Wikipedia is FALSE?

- (a) The “wiki” part of Wikipedia means “fast” in Hawaiian.
- (b) Wikipedia uses a program to automatically detect and revert instances of vandalism.
- (c) A watchlist is a special Wikipedia page that lists all the most recent Wikipedia changes.
- (d) Articles on academic topics are more reliable than those on pop culture.
- (e) Rapidly changing information can lead to issues when using Wikipedia as a reference.

Question 32

[2.5 marks] What wiki markup would you use to produce the following content?

1. Doom (2016)

- FPS developed by id Software
- Reboot of the Doom series

(a) #Doom (2016)

##FPS developed by id Software

##Reboot of the Doom series

(b) *Doom (2016)

*#FPS developed by id Software

*#Reboot of the Doom series

(c) *Doom (2016)

**FPS developed by id Software

**Reboot of the Doom series

(d) #Doom (2016)

*#FPS developed by id Software

*#Reboot of the Doom series

(e) None of the above.

Question 33

[2.5 marks] Which of the following statements about LaTeX is FALSE?

(a) LaTeX is free and runs on several platforms.

(b) Donald Knuth created LaTeX in 1984.

(c) LaTeX started as an extension to TeX.

(d) LaTeX is particularly useful for typesetting mathematical content.

(e) LaTeX is used to typeset documents.

Question 34

[2.5 marks] What would the following LaTeX code produce?

```
T
he CO
  MPSCI 111\\
Mid-semester
  Test
```

- (a) The CO MPSCI 111
Mid-semester Test
- (b) The CO MPSCI 111
Mid-semester Test
- (c) The COMPSCI 111
Mid-semester Test
- (d) The COMPSCI 111
Mid-semester Test
- (e) None of the above.

Question 35

[2.5 marks] What LaTeX code would you use to produce the following content?

- *Cats*
- Dogs

- (a) `\begin{itemize}`
`\item \textit{Cats}`
`\item \textsc{Dogs}`
`\end{itemize}`
- (b) `\begin{itemize}`
`\item \texttt{Cats}`
`\item \textsf{Dogs}`
`\end{itemize}`
- (c) `\begin{itemize}`
`\item \textit{Cats}`
`\item \textsf{Dogs}`
`\end{itemize}`
- (d) `\begin{itemize}`
`\item \texttt{Cats}`
`\item \textsc{Dogs}`
`\end{itemize}`
- (e) None of the above.

Question 36

[2.5 marks] What LaTeX code would you use to produce the following content?

$$\sum_{n=1}^{\infty} (b_n - b_{n+1}) \quad (1)$$

- (a) `\begin{displaymath}`
`\sum^{\infty}_{n=1} (b_n - b_{n+1})`
`\end{displaymath}`
- (b) `\begin{equation}`
`\sum^{\infty}_{n=1} (b_n - b_{n+1})`
`\end{equation}`
- (c) `\begin{center}`
`\$ \sum^{\infty}_{n=1} (b_n - b_{n+1}) \quad (1) \$`
`\end{center}`
- (d) `\begin{displaymath}`
`\sum^{\infty}_{n=1} (b_n - b_{n+1}) \quad (1)`
`\end{displaymath}`
- (e) None of the above.

Question 37

[2.5 marks] Which of the following statements about web design is FALSE?

- (a) Web pages in a web site should be visually consistent.
- (b) When creating a link, use link text that indicates where the link leads to.
- (c) Web sites should only use high resolution JPEG images.
- (d) It is important that users are able to navigate a web site quickly and easily.
- (e) Avoid cluttering a web page by having it display too much content.

Question 38

[2.5 marks] Which of the following is NOT a criticism that Edward Tufte has made against PowerPoint?

- (a) Using PowerPoint may result in poor presentations with the audience misunderstanding the presenter.
- (b) PowerPoint is part of the Microsoft Office Suite and is therefore too expensive.
- (c) Ideas, concepts, and tables may not fit well with the PowerPoint slide format.
- (d) PowerPoint is evil.
- (e) PowerPoint constrains the presenter.

Question 39

[2.5 marks] Which of the following statements is NOT good presentation design advice?

- (a) Charts may help the audience visualize data trends more easily.
- (b) Only use simple backgrounds that contrast well against the content.
- (c) Animation can distract the audience from the presentation content.
- (d) Colours should be used to decorate a presentation and make it more visually appealing.
- (e) Only capitalize text when necessary.

Question 40

[2.5 marks] What would the following LaTeX code produce?

$\frac{\sqrt{\lambda^x t^{x-1} e^{-\lambda t}}}{(x-1)!}$

(a)
$$\frac{\sqrt{\lambda^x t^{x-1} e^{-\lambda t}}}{(x-1)!}$$

(b)
$$\frac{\sqrt{\lambda^x t^{x-1} e^{-\lambda t}}}{(x-1)!}$$

(c)
$$\frac{\sqrt{\lambda^x t^{x-1}}}{(x-1)!} e^{-\lambda t}$$

(d)
$$\sqrt{\frac{\lambda^x t^{x-1} e^{-\lambda t}}{(x-1)!}}$$

(e)
$$\sqrt{\frac{\lambda^x t^{x-1}}{(x-1)!}} e^{-\lambda t}$$